



DUNHAM

HEATING SYSTEMS AND EQUIPMENT

C. A. DUNHAM CO. LIMITED

140 WENDELL AVE.

-

TORONTO 15

ST. JOHN'S

MONTREAL

WINNIPEG

HALIFAX

OTTAWA

CALGARY

QUEBEC

TORONTO

EDMONTON

SHERBROOKE

HAMILTON

VANCOUVER

[BLANK PAGE]



CCA

DUNHAM HEATING EQUIPMENT PRICES

Subject To Change Without Notice

F.O.B. Factory

• Sales Tax Extra

• Terms Net Thirty Days

C. A. DUNHAM COMPANY LIMITED

140 WENDELL AVE., TORONTO 15, ONTARIO

Dunham Heating Equipment Prices are net to the Consumer who does not regularly employ a maintenance personnel to install heating equipment. These prices are subject to a discount of

15% To Heating Contractors

Conditions Of Sale

DISCOUNT: The discount of 15% will apply to all purchases of miscellaneous heating equipment not covered by specific quotations.

QUOTATIONS: Subject to change without notice but quotations for a specific list of heating equipment will be open for acceptance for 30 days from date thereof. Quotations covering specific list of heating equipment for individual building projects or stock requirements will be issued on request. Prices quoted will be affected by market conditions, availability of materials and planned production existing at the time quotations are issued.

ORDERS

1. Orders for shipment "when advised" will not be entered for production until releasement is received.
2. Cancellation charges will be made if orders are completed or in production.

GUARANTEE

- (a) New parts to replace defective material or workmanship will be furnished for a period of one year from date of shipment.
- (b) Replacement parts shall be F. O. B. Toronto and subject to inspection.
- (c) Replacement of component parts not of our manufacture, will be limited to the warranty of the manufacture of such parts.
- (d) This guarantee does not include any labor charges for replacement parts, adjustments, repairs or any work done.

[BLANK PAGE]



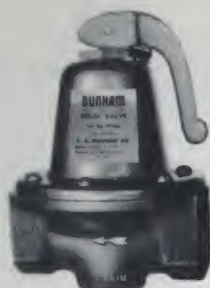
CCA

SPECIALTIES SECTION

File No. 1555

PRESSURE RELIEF & REDUCING VALVES

Types V21A, V22A, V23A Dual Unit



Pressure Relief Valve V21A4



Pressure Relief Valve V21A5



Dual Unit Pressure Relief and Reducing Valve V23A4



Pressure Reducing Valve V22A4



Pressure Reducing Valve V22A5

APPLICATION

Dunham V21A Relief Valves dependably protect hot water heating systems from excess pressure. Any pressure in excess of 30 PSI lifts the extra large diaphragm to relieve the system.

Dunham V22A Pressure Reducing Valves keep hot water heating systems properly filled with water by automatically maintaining a minimum pressure of 12 PSI. Any drop in

pressure below 12 PSI causes this valve to open and feed water into the system.

Dunham V23A Dunham Combination Valves are dual units made up of the V21A Relief Valve and V22A Pressure Reducing Valve. These units are shipped completely assembled and ready for installation.

FEATURES

DUNHAM V21A RELIEF VALVE

RUGGED CONSTRUCTION—Body is made of heavy cast iron—all working parts of corrosion-proof brass. Ground and polished metal-to-metal seats are used—no tight fitting guides on discharge side to jam or stick. Extra large diaphragm areas. Relief Valve opens at 30 PSI and is non-adjustable.

CONVENIENT TESTING LEVER—Easily operated lever on Dunham Relief Valves permits testing and occasional flushing.

DUNHAM V22A PRESSURE REDUCING VALVE

RUGGED CONSTRUCTION—Body is made of heavy cast iron—all working parts of corrosion-proof brass. Built in strainer, at inlet side, guards against pipe scale and dirt. It can be easily removed for cleaning. Extra large diaphragm areas.

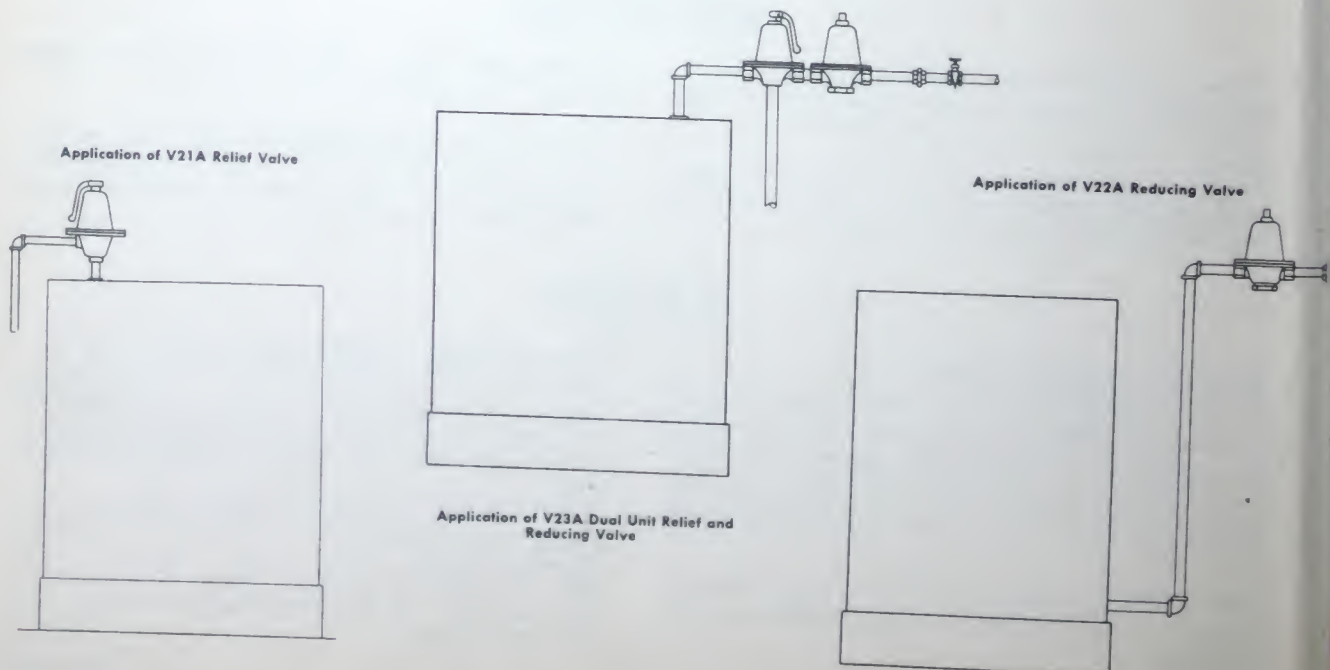
QUIET OPERATION—Special composition disc seats on stainless steel. This eliminates chattering and helps provide noiseless operation.

EASY TO ADJUST—Dunham Pressure Reducing Valves are set at 12 lbs.; but can be easily adjusted to meet different building heights.

SPECIFICATIONS AND WEIGHTS

CAT. NO.	SIZE	SETTING	APPROX. SHIPPING WEIGHT
V23A4 DUAL UNIT	1/2"	RELIEF VALVE—30 LBS. REDUCING VALVE—12 LBS.	5 1/2 LBS.
V21A4 RELIEF VALVE	1/2"	30 LBS.	2 3/4 LBS.
V21A5 RELIEF VALVE	3/4"	30 LBS.	4 LBS.
V22A4 REDUCING VALVE	1/2"	12 LBS.	3 LBS.
V22A5 REDUCING VALVE	3/4"	12 LBS.	3 1/4 LBS.

TYPICAL INSTALLATIONS



SPECIALTIES SECTION

File No. 1557



Dunham Float Type
V20A Air Vent

AUTOMATIC AIR VENTS

Expansion Type V19A, Float Type V20A



Dunham Expansion Type
V19A Air Vent

APPLICATION

Dunham V19 Air Vents automatically vent air from convectors, baseboard, finned pipe, cast iron radiation and from the high points of mains or branches in hot water heating systems. Maximum water pressure is 50 PSI.

Dunham V20 Air Vents continuously and automatically vent air from hot water mains, unit heaters, radiant panels, down feed systems and cold water lines where the operating pressure does not exceed 35 PSI.

FEATURES

DUNHAM V-19 AIR VENT

INGENIOUS DESIGN AND CONSTRUCTION—Dunham V19 expansion type Air Vents are designed so that nothing can get out of working order! After the system is filled, the special hygroscopic discs become wet and expand, sealing the venting ports. As trapped air collects, the discs dry out and contract, opening the venting ports. This allows the trapped air to escape. Vent can be installed vertically or horizontally; but never upside down. These air vents have non-rusting, all-brass parts. $\frac{1}{8}$ " pipe thread connection.

NO ADJUSTMENT NEEDED—After the disc body and cap have been initially seated, no further adjustments are ever needed.

DUNHAM V-20 AIR VENT

BUILT-IN SYPHON—With the Dunham V20 Float type Air Vent, it is not necessary to add a drain tube. Built-in siphon prevents "spitting". In unusual installations, where excessive moisture in the discharged air must be drained away; $\frac{1}{4}$ " drain tube connection for this vent can be furnished on order at extra cost.

EASY TO SERVICE—Typical of all Dunham products the V20 Air Vent is easy to service. It can be completely dis-

MANUAL VENTING—When the heating system is first being filled, the disc body on these vents can be turned counter-clockwise $\frac{3}{4}$ of a turn to permit rapid air removal.

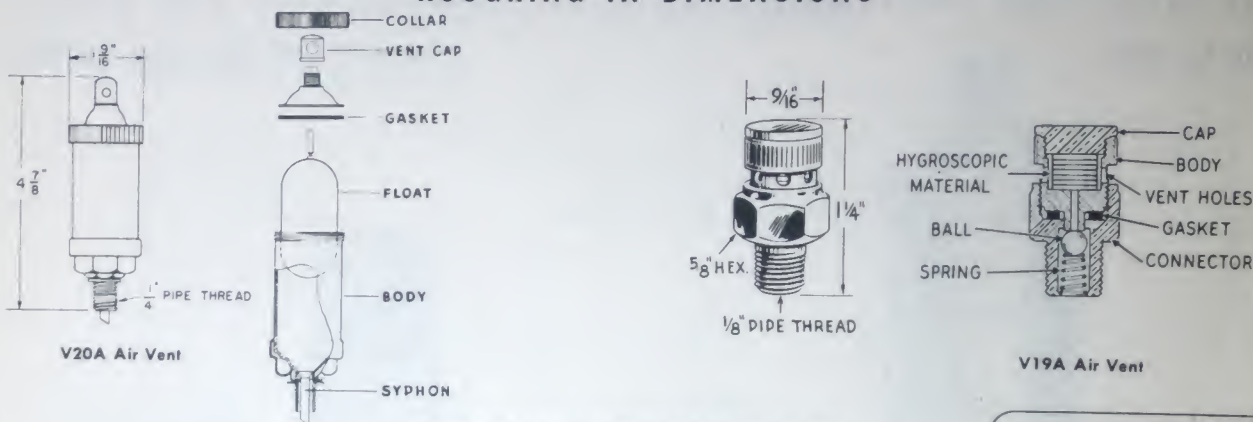
EASY TO SERVICE—To replace discs in the Dunham V19 Air Vent, it is not necessary to drain the system. As the disc body is unscrewed, an integral ball check valve closes the opening. The discs can then be replaced without the necessity of draining the system.

MANUAL SHUT-OFF—Removing the disc body and permitting the ball check valve to seat, also acts as a manual shut-off.

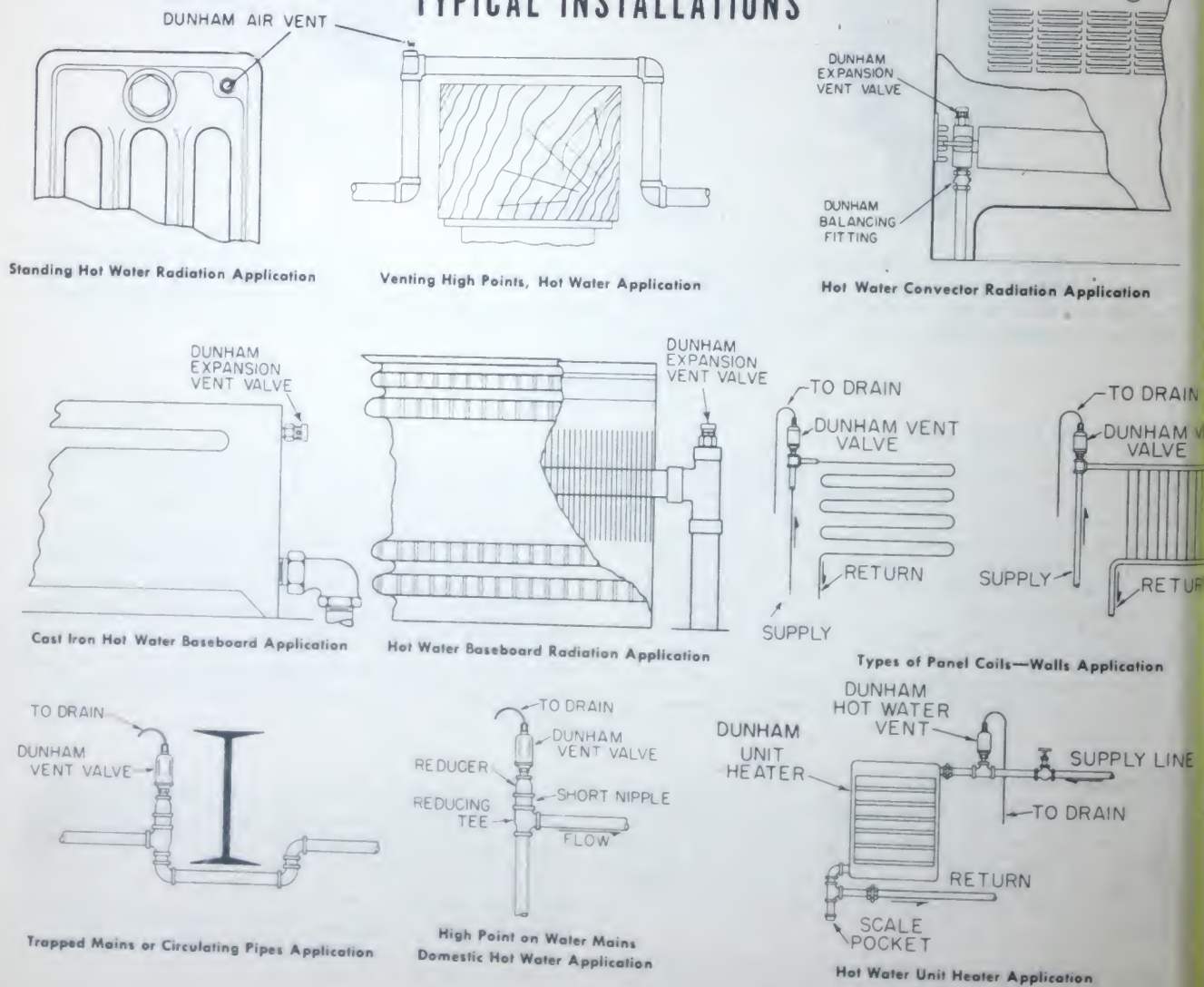
assembled quickly and easily for routine cleaning. If dirt or cleaning compound gets between the float pin and seat, the valve cap can be tightened to stop any water leakage until convenient to remove the valve.

SIMPLICITY OF PIPING—All parts of non-rusting heavy brass. The body is fitted with a male nipple thread $\frac{1}{4}$ " IPS. No extra fittings required. If a drain tube is desired, the top is threaded for a $\frac{1}{8}$ " connection.

ROUGHING-IN DIMENSIONS



TYPICAL INSTALLATIONS



DUNHAM

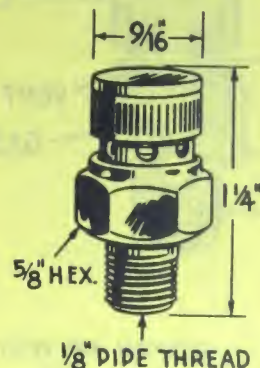
INSTALLATION INSTRUCTIONS

SPECIALTIES SECTION

File No. 3551

AUTOMATIC AIR VENT

Model V19A1 Expansion Type

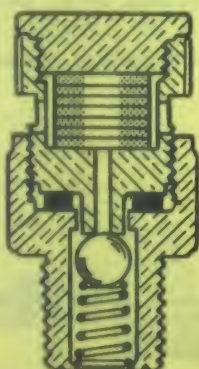


HOW TO INSTALL

The Dunham No. V19A Automatic Vent is designed for use on hot water systems. Hygroscopic fiber discs automatically open to vent air and to close against water. The No. V19A Vent is designed to op-

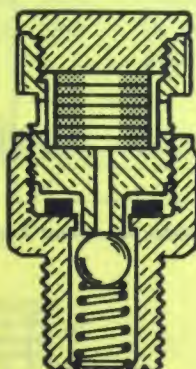
erate at a maximum water pressure of 50 p.s.i. The following diagrams tell the story of how the Dunham No. V19A Vent operates.

AUTOMATIC VENTING



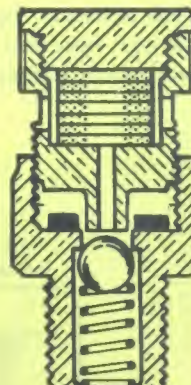
Max. Operating Pressure 50 lbs.
Screw disc assembly into body until it seats on gasket. Serrations on end of stem allow air to pass ball check and vent automatically through discs. Install valve horizontally or vertically, never inverted.

MANUAL VENTING



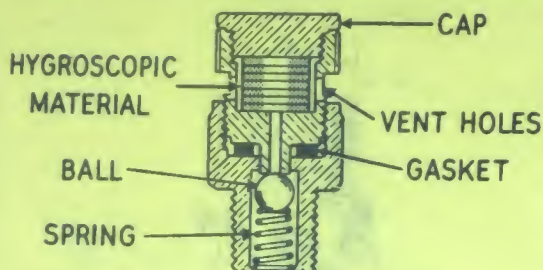
For Initial Venting Of Installation. To vent system manually, unscrew disc assembly exactly 3/4 of a turn. This permits the air to flow past the ball check and gasket, and out through the threads.

MANUAL SHUT OFF



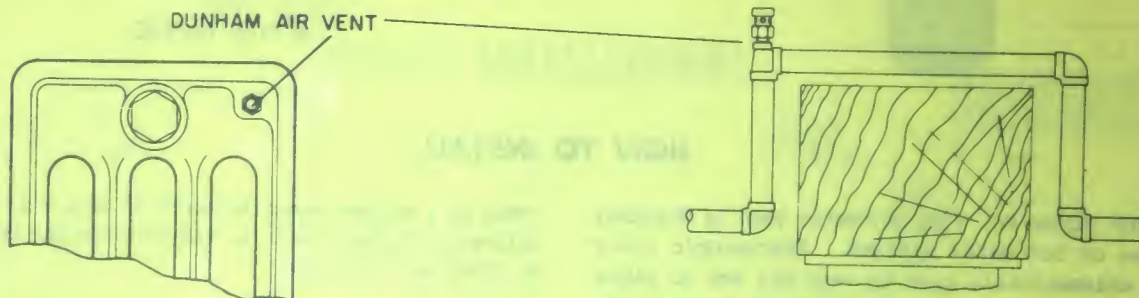
To change valve from automatic venting to manual shut off, unscrew disc assembly two or more complete turns. This allows ball check to seat in body and prevents passage of air or water.

SERVICING - CLEANING



The Dunham No. V19A can be taken apart and cleaned or fiber discs replaced without draining the system, should leak-sealing compounds or high mineral content of the water require it. Simply unscrew the cap from the body and remove the 7 Hygroscopic Discs. The ball check in the base is firmly held by a spring against the seat in the base, thus preventing leakage of water. Replace Cap and Discs, and the Valve is again ready for operation.

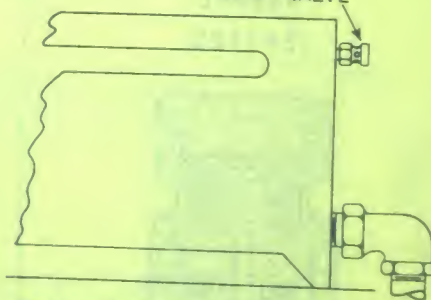
TYPICAL INSTALLATION



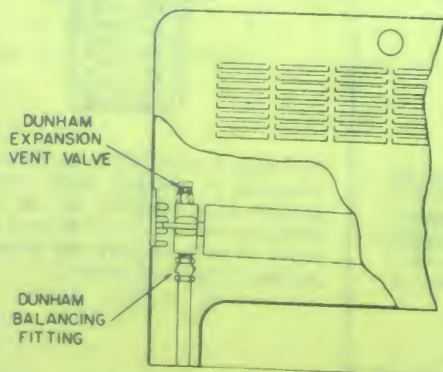
Standing Hot Water Radiation Application

DUNHAM EXPANSION VENT VALVE

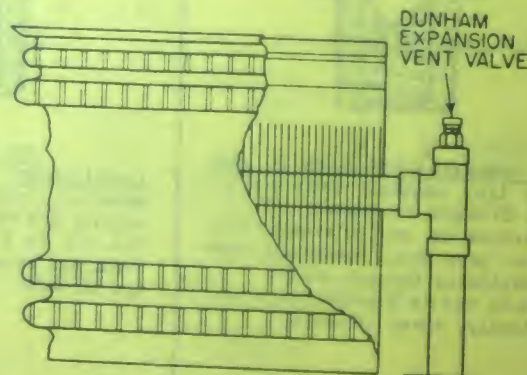
Venting High Points, Hot Water Application



Cast Iron Hot Water Baseboard Application



Hot Water Convactor Radiation Application



Hot Water Baseboard Radiation Application

SPECIALTIES SECTION

File No. 3552

AUTOMATIC AIR VENT

Model V20A Float Type



HOW TO INSTALL

Float Type vents have advantages over Expansion types in that they will handle large quantities of air continuously. This makes them particularly desirable for use on mains and industrial equipment.

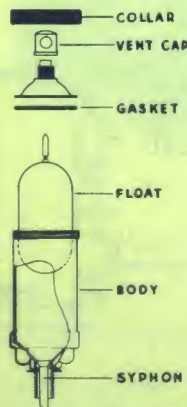
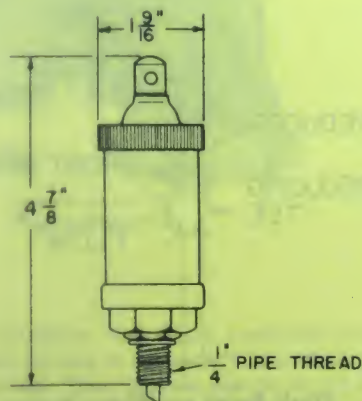
V20A Float Vents should always be installed in a vertical position. No air chamber is required. For pressures not exceeding 35 p.s.i.

AUTOMATIC VENTING--Unscrew the vent cap two turns counter-clockwise.

MANUAL SHUT-OFF--Tighten the vent cap by screwing clockwise.

DRAIN CONNECTION--Where the Float Vent is to be installed in an inaccessible or concealed position, it is advisable to replace the vent cap with a $\frac{1}{4}$ " copper tube connector for safety drain connection.

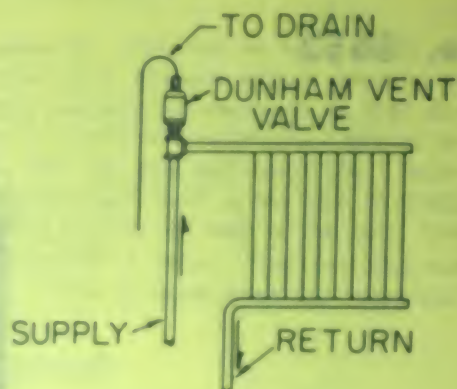
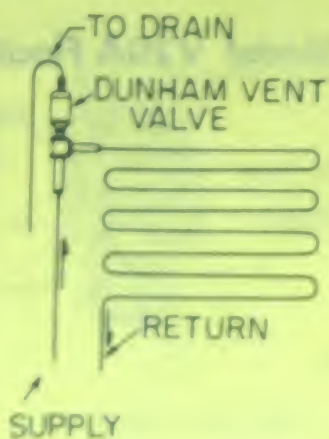
SERVICING - CLEANING



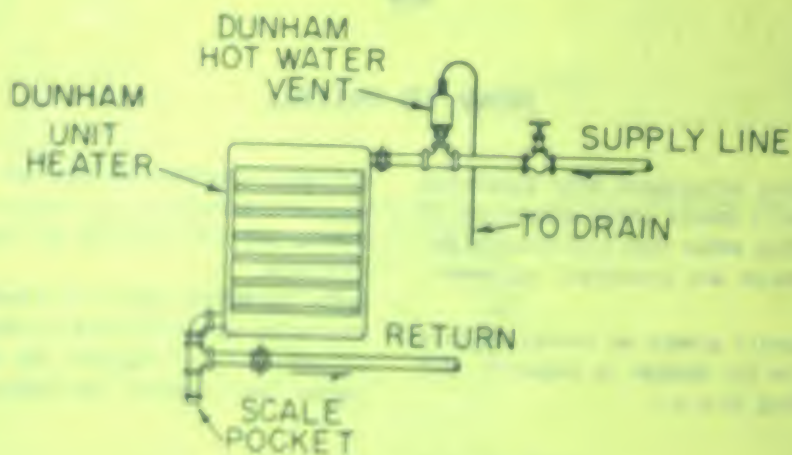
The V20A Float Vent may be cleaned of sediment, scale or foreign material in the field simply by un-

screwing the collar. All parts are then readily accessible for service.

TYPICAL INSTALLATIONS



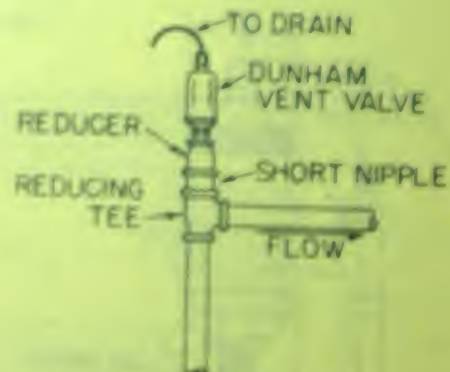
Types of Panel Coils—Wall Applications



Hot Water Unit Heater Application



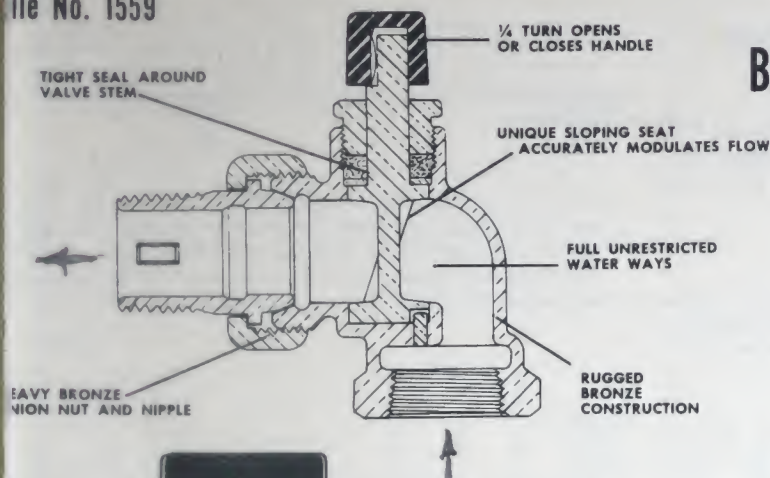
Trapped Mains or Circulating Pipe Application



High Point on Water Mains Domestic Hot Water Application

SPECIALTIES SECTION

File No. 1559



HOT WATER CIRCULATOR VALVES

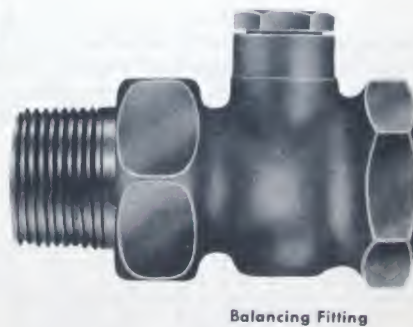
Types V24, 25, 26, 27, 28, 29

BALANCING ELBOWS—FITTINGS

Types F15, 16, 17, 18, 19, 20, 21

VENT TEES

Types T7, 8, 9



APPLICATION

Dunham Circulator Valves are applicable to all types of forced water heating or cooling systems where tight shut-off is not required. They provide instant on or off control of water flow to any type of heating element used in base-board, convectors or radiators.

Dunham Balancing Elbows and Fittings are used to balance the water flow in forced water heating or cooling systems. After adjusting the fitting, each radiator or radiant pipe coil

receives the correct flow of hot water for even heat regardless of location.

Dunham Vent Tees are applicable to all types of forced hot water systems. They simplify and cut the installation time of piping to all finned tube radiation or wherever an air vent is required at the high points of all vertical changes in flow of mains or branches.

Dunham Union Elbows and Connectors are applicable to all types of low pressure steam and hot water systems.

FEATURES

DUNHAM BALANCING ELBOWS AND FITTINGS

PRECISION MANUFACTURE—Dunham Balancing Fittings are constructed from precision machined, rugged, corrosion proof bronze castings. Heavy bronze union nut and nipple built to withstand severe wrench strain.

TIGHT SEAL AROUND VALVE STEM—Heavy packing nut exerts pressure on a solid one-piece graphited asbestos packing ring providing a tight seal around the valve stem.

SIMPLIFIED DESIGN—Here again the highly important free waterflow area is larger than in any other water heating or cooling balancing fitting. This full unrestricted waterway reduces water friction and pump load. A simple screw driver slot, which is provided for fast, easy adjustment, indicates position of butterfly. Adjustment can be made without draining the system.

MODULATED CONTROL—The valve body is fitted with a sloping seat which provides a V-shaped opening to modulate the percentage of flow through the valve far more accurately than the usual type of vertical seat. This provides graduated balance control from full open to any degree of closure.

FULL LINE—In both elbows and fittings, F18 and 15 have threaded connections both inlet and outlet, F21 and 17 has sweat inlet connections and threaded outlet connection, F16 and 20 has sweat to sweat connections.

DUNHAM VENT TEES

SIMPLE, RUGGED CONSTRUCTION—Dunham Vent Tees are constructed from precision machined bronze castings. Reduction sizes eliminate the need for reducing bushings. Ready tapped $\frac{1}{8}$ " air vent opening in return fitting eliminates need for bushing or drilling and tapping. Use the Type V19A1 Dunham hygroscopic air vent.

FULL LINE—T9 have threaded connections, T7 has thread to sweat. $\frac{1}{8}$ " vent tapping is threaded on all patterns for automatic air vent connections, T8 has sweat to sweat connections.

SIMPLE, RUGGED CONSTRUCTION—Union Elbows and Connectors are constructed from precision machined bronze castings. Clean, true threads insure quick aligning. Heavy bronze union nut and nipple are built to withstand severe wrench strain.

DUNHAM CIRCULATOR VALVES

SIMPLE, RUGGED CONSTRUCTION—Dunham Circulator Valves are constructed from precision machined bronze castings. Heavy bronze union nut and nipple built to withstand severe wrench strain.

TIGHT SEAL AROUND VALVE STEM—Heavy packing nut exerts pressure on a solid one-piece graphited asbestos packing ring providing a tight seal around the valve stem.

FUNCTIONAL DESIGN AND STYLING—Dunham Valves free waterflow area is larger than any other hot water valve. This means full unrestricted waterways that reduce water friction and pump load. New T-type handle indicates position of butterfly, provides a sure hand grip and with only a quarter turn is fully opened or closed. Valves are self-cleaning of all sediment. To prevent freezing—these valves, when closed, allow a pre-determined minimum amount of water leakage around the entire butterfly. External dimensions of valves allow concealed installation in either convectors, baseboard, Fin-Vector or exposed installation with cast iron radiation.

FULL LINE—V25 and 27 valves have threaded connections both inlet and outlet, V24 and 28 valves have sweat inlet connection and threaded outlet, V26 and 29 valves have sweat to sweat connections.

DIMENSIONS, BALANCING ELBOWS—FITTINGS

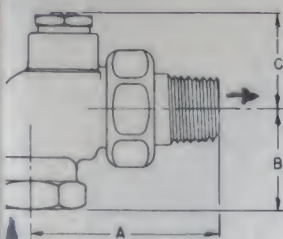


Fig. 1

Thread to Thread Connections

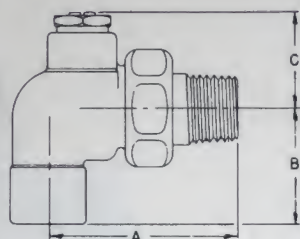


Fig. 2

Thread to Sweat Connections

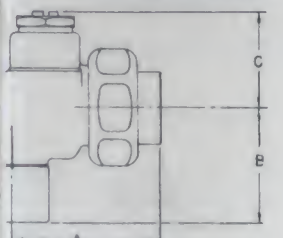


Fig. 3

Sweat to Sweat Connections

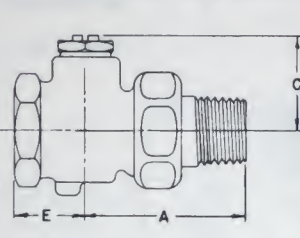


Fig. 4

Thread to Thread Connections

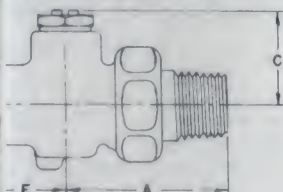


Fig. 5

Thread to Sweat Connections

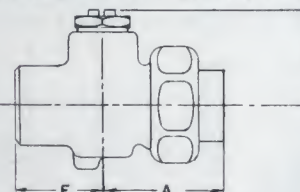


Fig. 6

Sweat to Sweat Connections

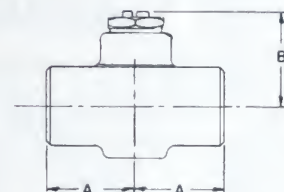


Fig. 7

Sweat to Sweat Connections

FIG. NO.	CAT. NO.	SIZE	DIMENSIONS IN INCHES			
			A	B	C	E
1	F15A4	1/2	2 1/4	1 1/2	1 1/2	
	F15A5	3/4	2 3/4	1 3/4	1 3/4	
	F15A6	1	3 1/2	1 1/2	1 1/2	
2	F17A4	1/2	2 1/4	1 3/4	1 1/2	
	F17A5	3/4	2 3/4	1 1/2	1 3/4	
3	F16A4	1/2	1 3/4	1 3/4	1 1/2	
	F16A5	3/4	2 3/4	1 1/2	1 3/4	
4	F18A4	1/2	2 3/4		1 1/2	1 1/2
	F18A5	3/4	2 1/2		1 3/4	1 1/2
	F18A6	1	2 1/2		1 1/2	1 1/2
5	F21A4	1/2	2 3/4		1 1/2	1 1/2
	F21A5	3/4	2 1/4		1 3/4	1 1/2
6	F20A4	1/2	1 3/4		1 1/2	1 1/2
	F20A5	3/4	1 3/4		1 3/4	1 1/2
7	F19A3	3/8	2 1/2	1 1/2		
	F19A4	1/2	1 1/2	1 1/2		
	F19A5	3/4	1 1/2	1 3/4		
	F19A4C	1/2 x 3/8	1 1/2	1 1/2		

DIMENSIONS, TEE TEES

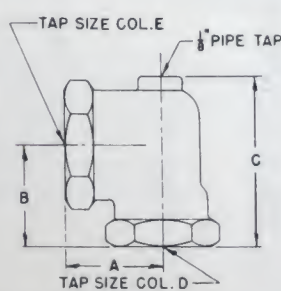


Fig. 8

Thread to Thread Connections

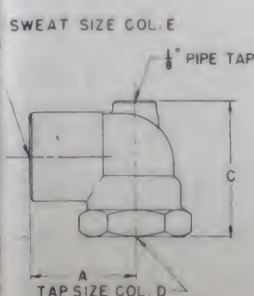


Fig. 9

Thread to Sweat Connections

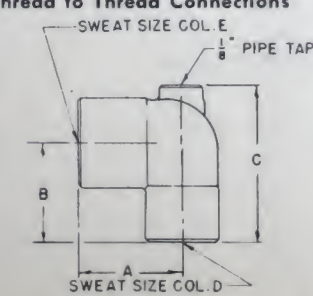


Fig. 10

Sweat to Sweat Connections

FIG. NO.	CAT. NO.	SIZE	DIMENSIONS IN INCHES			PIPE TAP SIZE	
			A	B	C	D	E
8	T9A4A6	1/2 x 1	1 1/4	1 1/4	2 1/2	1/2	1
	T9A5A6	3/4 x 1	1 3/4	1 1/2	2 3/4	3/4	1
	T9A6A6	1 x 1	1 1/2	1 1/2	2 1/2	1	1
	T9A5A7	3/4 x 1 1/4	1 3/4	1 1/2	2 3/4	3/4	1 1/4
	T9A6A7	1 x 1 1/4	1 3/4	1 3/4	2 3/4	1	1 1/4
	T9A7A7	1 1/4 x 1 1/4	1 1/4	1 1/4	2 1/4	1 1/4	1 1/4
9	T7A4A6	1/2 x 1	1 1/2	1 1/2	2	1/2	1
	T7A5A6	3/4 x 1	1 1/2	1 1/2	2	3/4	1
	T7A5A7	3/4 x 1 1/4	1 1/2	1 1/2	2 1/4	3/4	1 1/4
	T7A6A7	1 x 1 1/4	1 1/2	1 1/2	2 3/4	1	1 1/4
10	T8A4A5	1/2 x 3/4	1 1/4	1 1/4	1 3/4	1/2	3/4
	T8A5A5	3/4 x 3/4	1 1/4	1 1/4	2 1/4	3/4	3/4
	T8A4A6	1/2 x 1	1 1/4	1 1/4	2 1/4	1/2	1
	T8A5A6	3/4 x 1	1 1/2	1 1/4	2 1/2	3/4	1
	T8A6A6	1 x 1	1 1/4	1 1/4	2 1/2	1	1

DIMENSIONS, CIRCULATOR VALVES

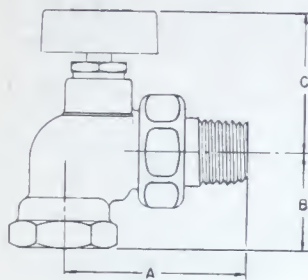


Fig. 11
Thread to Thread Connections

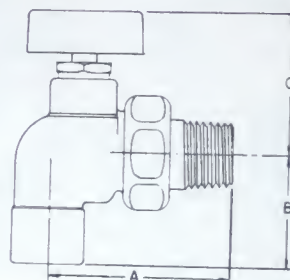


Fig. 12
Thread to Sweat Connections

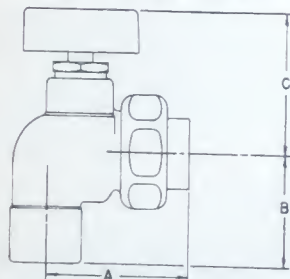


Fig. 13
Sweat to Sweat Connections

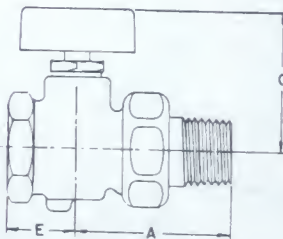


Fig. 14
Thread to Thread Connections

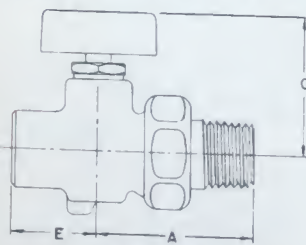


Fig. 15
Thread to Sweat Connections

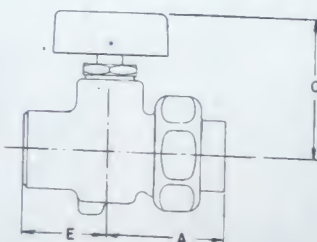


Fig. 16
Sweat to Sweat Connections

FIG. NO.	CAT. NO.	SIZE	DIMENSIONS IN INCHES				
			A	B	C	E	
11	V27A4	1/2	2 1/4	1 1/2	1 1/2		
	V27A5	3/4	2 3/4	1 3/4	2 1/4		
	V27A6	1	3 1/2	1 1/4	2 3/4		
12	V28A4	1/2	2 1/4	1 3/4	1 1/2		
	V28A5	3/4	2 3/4	1 1/2	2 1/4		
13	V29A4	1/2	1 3/4	1 3/4	1 1/2		
	V29A5	3/4	2 1/2	1 1/2	2 1/4		
14	V25A4	1/2	2 3/4		1 1/2	3/2	
	V25A5	3/4	2 1/2		2 1/4	1 1/2	
	V25A6	1	2 1/4		2 3/4	1 1/2	
15	V24A4	1/2	2 3/4		1 1/2	3/2	
	V24A5	3/4	2 1/4		2 1/4	1 1/2	
16	V26A4	1/2	1 3/4		1 1/2	3/2	
	V26A5	3/4	1 3/4		2 1/4	1 1/2	



SPECIALTIES SECTION

File No. 1561

FLOW DIVERTOR FITTINGS

Types F5A, F6A



Flow Divertor Fitting with Sweat to Sweat Connections



Flow Divertor Fitting with Thread to Thread Connections

APPLICATION

Dunham Flow Divertor Fittings are applicable to all one-pipe Hot Water Heating Systems. They are used to assure proper flow of hot water through convectors, baseboard or other types of radiation installed as separate units regardless of location. Only one fitting usually is required for each set of radiation. This should be installed on the return connection to the main, whether the main is below or above the heating unit.

The Dunham Flow Divertor Fitting is scientifically sized to provide the right resistance to flow through the main. This, in conjunction with the induced flow caused by the orifice action of the fitting in the return connection, will balance the greatest resistance encountered in the by-pass

through the radiation unit of the largest size which can be fed by the size of pipe of the by-pass.

Only unusual circumstances require two fittings for the same by-pass. But it is usually advisable to use a Dunham Balancing Fitting for the radiation unit in the by-pass to balance the system.

Where unit heaters comprise a part of or all the heating units in the system, it is recommended that they be installed on a two-pipe circuit rather than a one-pipe circuit. This is because the high pressure drop through the unit and the large quantities of water involved exceed the diverting capacities of standard size Dunham Flow Divertor Fittings.

FEATURES

LOW COST—Installation costs are cut, since only one fitting (on the return) need be used with each radiation unit, whether above or below the main. The same fitting may be reversed and used as a supply fitting in exceptional cases.

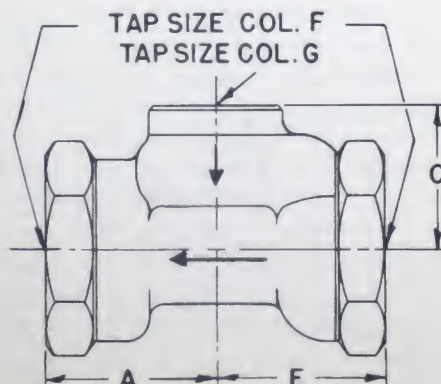
SOUND ENGINEERING—Dunham's fifty years of engineering experience in designing, perfecting and building top

quality heating systems and equipment presently heating buildings of all types, sizes and ages, stands behind the development of this hot water Flow Divertor Fitting.

ALL BRONZE CONSTRUCTION—The one-piece, precision machined bronze casting assures long life, positive alignment and proper sizing.

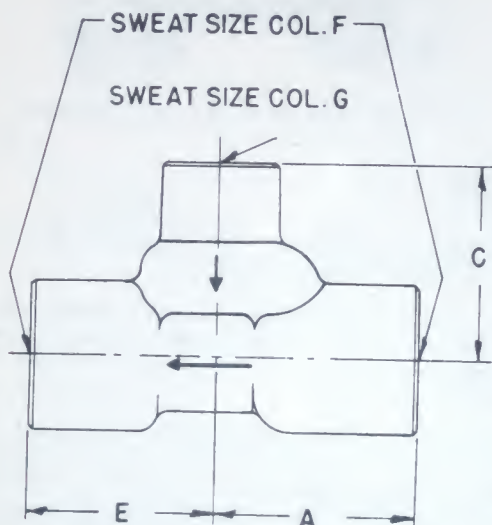
DIMENSIONS

CAT. NO.	SIZE	DIMENSIONS IN INCHES			PIPE TAP SIZE	
		A	C	E	F	G
5A6F4	1 x 1/2	1 1/2	1 1/4	1 1/2	1	1/2
5A6F5	1 x 3/4	1 1/2	1 3/8	1 1/2	1	3/4
5A7G4	1 1/4 x 1/2	1 3/4	1 3/8	1 3/4	1 1/4	1/2
5A7G5	1 1/4 x 3/4	1 3/4	1 1/2	1 3/4	1 1/4	3/4
5A8H4	1 1/2 x 1/2	1 3/8	1 3/8	1 3/8	1 1/2	1/2
5A8H5	1 1/2 x 3/4	1 3/8	1 3/8	1 3/8	1 1/2	3/4
5A9J4	2 x 1/2	2	1 3/4	2	2	1/2
5A9J5	2 x 3/4	2	1 3/4	2	2	3/4
5A9J6	2 x 1	2	1 3/4	2	2	1

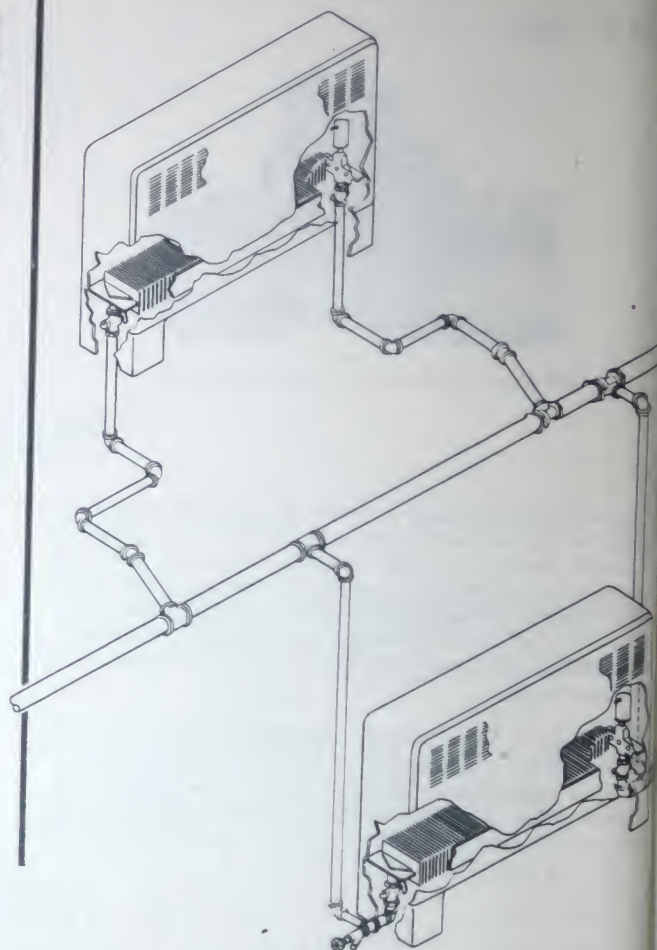


DIMENSIONS

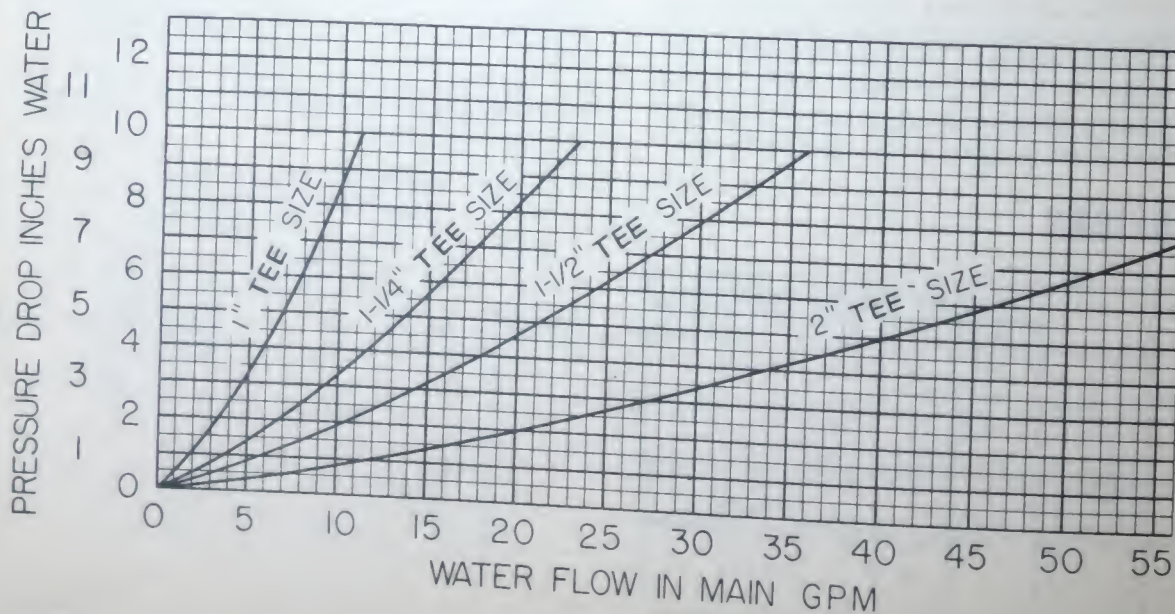
CAT. NO.	SIZE	DIMENSIONS IN INCHES					SWEAT SIZE
		A	C	E	F	G	
F6A5E4	¾ x ½	1 ¼	1 ¼	1 ½	¾	½	
F6A6F4	1 x ½	1 ¼	1 ¼	1 ½	1	½	
F6A6F5	1 x ¾	1 ¼	1 ¼	1 ½	1	¾	



TYPICAL INSTALLATION



PRESSURE DROP TABLE

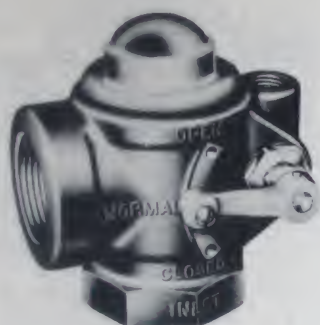


SPECIALTIES SECTION

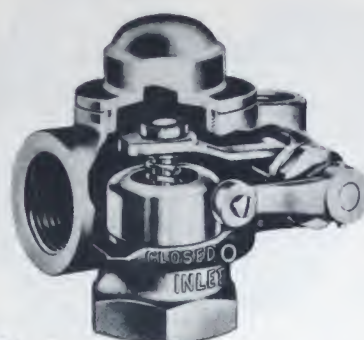
No. 1562

FLOW CONTROL VALVES

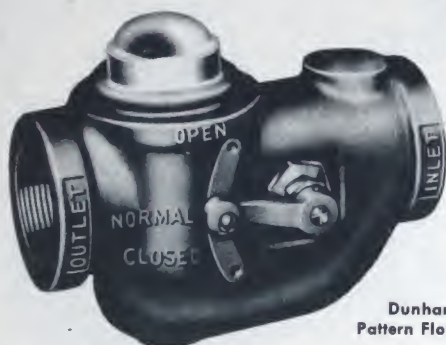
Types V17A Angle, V18A Horizontal



Dunham Angle Pattern Flow Control Valve



Cut-away View (Interior design of Angle and Horizontal Valves is alike.)



Dunham Horizontal Pattern Flow Control Valve

APPLICATION

Dunham Flow Control Valves prevent the circulation of hot water in forced water heating systems when heat is required by the building. This means that boiler water can be used at a temperature high enough to heat domestic water both winter and summer without overheating the

building. During the heating season, Dunham Flow Control Valves help to maintain a uniform temperature throughout the heating system by preventing gravity flow and temperature over-ride.

FEATURES

AMPLE, RUGGED CONSTRUCTION—Dunham Flow Control Valves have a heavy cast iron body with all working parts made of non-corrosive bronze. Accurately machined bronze disc has been carefully weighted and micro lapped. Bronze spring cushion is attached to free moving swing arm, which holds disc in closed position unless circulator is running. Interior design of Angle and Horizontal types is identical.

DOUBLE-FREE OPERATION—Dunham Flow Control Valves are completely automatic in operation and do not require adjustment for normal winter or summer operation. When circulator is running, bronze seat disc raises to open

valve. When circulator stops, seat disc closes tightly preventing gravity flow. External adjustment arm is easily positioned with a screw driver in "Open", "Normal", or "Closed" station. Flow Control Valve should be set at "Normal" for regular winter or summer operations and at "Open" for gravity circulation or to allow complete draining of system. Valve is shipped "Closed" to prevent damage. Set at "Normal" after installation.

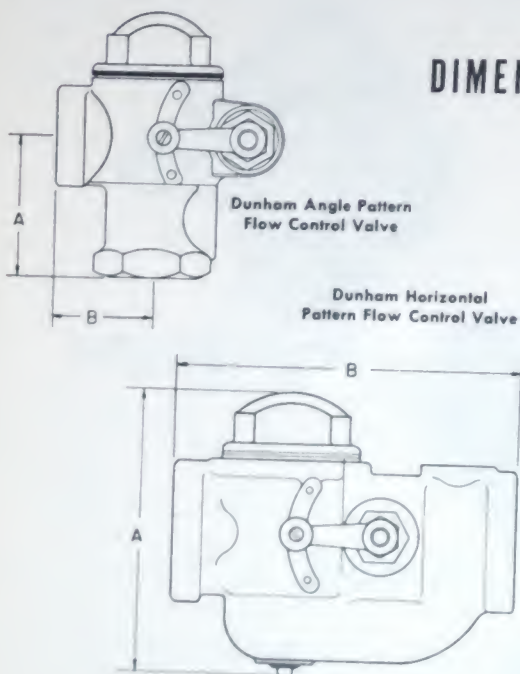
EASY TO MAINTAIN—To clean the bronze disc seat of Dunham Flow Control Valves, merely move the external adjusting arm up and down several times with the circulator running. No breaking of pipe connections or removal

FEATURES

of entire valve mechanism is necessary. All working parts can be easily inspected or serviced by removing top bronze cap.

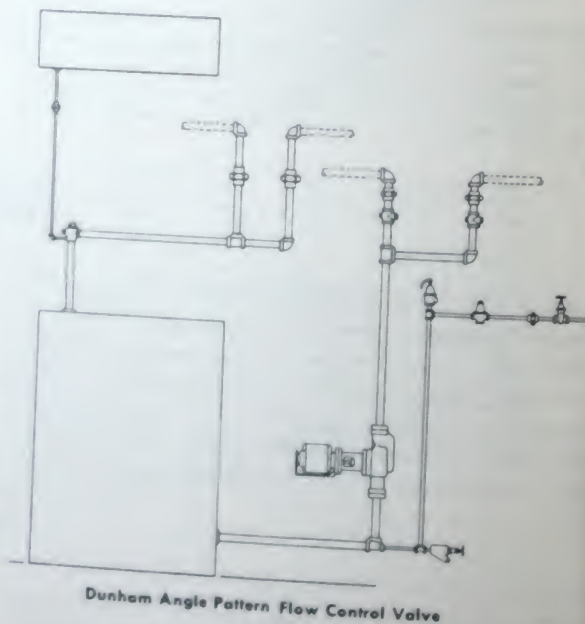
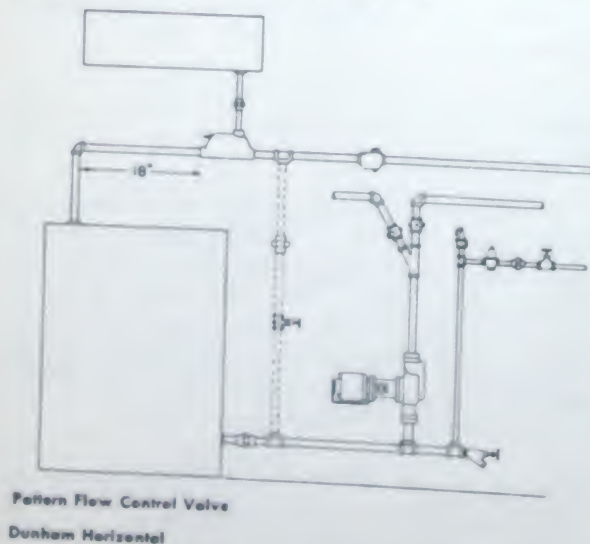
FULL LINE—A complete line of both angle and horizontal type Dunham Flow Control Valves are available. Angle type from 1" to 2½"; horizontal type from 1" to 3".

DIMENSIONS & WEIGHTS



CAT. NO.	TYPE	SIZE	DIMENSIONS IN INCHES		CONNECTIONS		APPROX. SHIPPING WEIGHTS
			A	B	INLET	OUTLET	
V17A6	ANGLE	1	2¾	1¾	SCREWED	SCREWED	3¾
V17A7	ANGLE	1½	2	2	SCREWED	SCREWED	3¾
V17A8	ANGLE	1½	2½	2¾	SCREWED	SCREWED	8¾
V17A9	ANGLE	2	4¾	4¾	FLANGED	FLANGED	21½
V17A10	ANGLE	2½	4¾	4¾	FLANGED	FLANGED	21½
V18A6	HORIZONTAL	1	4½	5½	SCREWED	SCREWED	5½
V18A7	HORIZONTAL	1½	4½	5½	SCREWED	SCREWED	5½
V18A8	HORIZONTAL	1½	5¾	7¾	SCREWED	SCREWED	12
V18A9	HORIZONTAL	2	7	10½	FLANGED	FLANGED	30
V18A10	HORIZONTAL	2½	7	10½	FLANGED	FLANGED	30
V18A11	HORIZONTAL	3	6¾	12¾	FLANGED	FLANGED	38

TYPICAL INSTALLATIONS

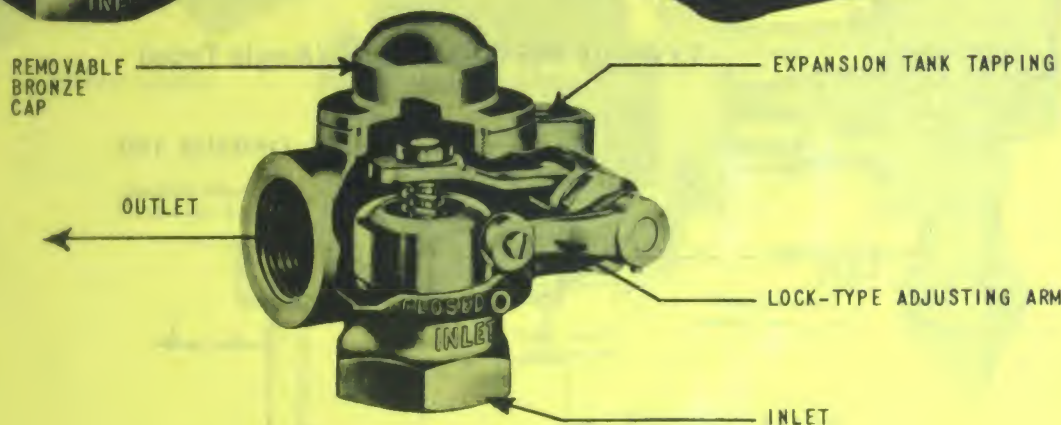
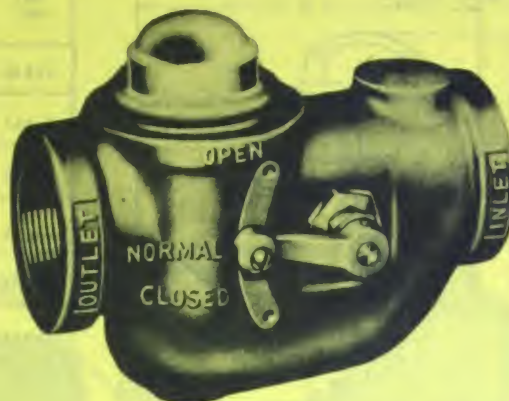


SPECIALTIES SECTION

FLOW CONTROL VALVE

File No. 3553

Angle and Horizontal Types

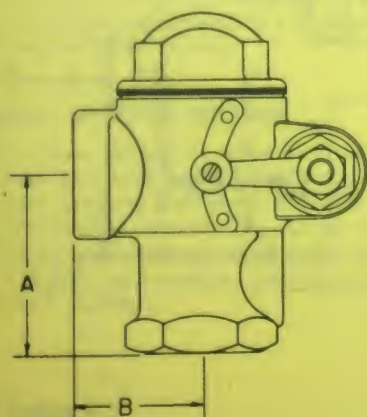


HOW TO INSTALL

Dunham Flow Control Valves are shipped with the adjusting Arm secured in the position marked CLOSED on the Valve body. This assures the Flow Control Valve arriving on the job with the seat in a clean condition. After installation, this arm should be reset and secured in the position marked NORMAL.

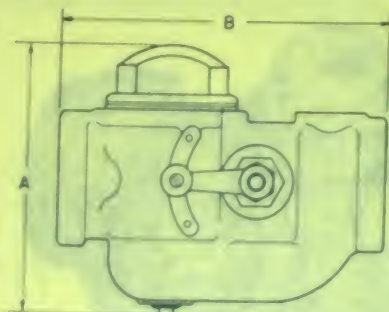
If hot water flows to radiation when the circulator is not running it indicates dirt on the seat of the Flow Control Valve. To correct this condition, start the circulator and move the adjusting arm on the Flow Control Valve up and down several times to wash off in most cases any dirt on the seat.

ROUGHING IN DIMENSIONS



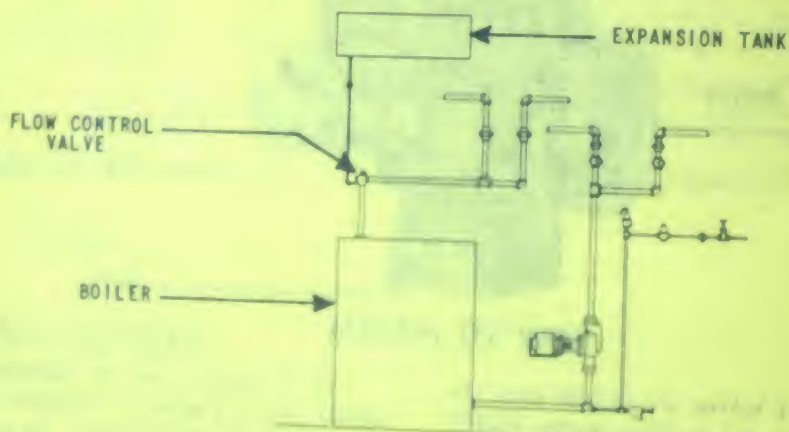
CAT. NO.	TYPE	SIZE	DIMENSIONS IN INCHES		CONNECTIONS		APPROX. SHIPPING WEIGHTS
			A	B	INLET	OUTLET	
V17A6	ANGLE	1	2 3/8	1 3/4	SCREWED	SCREWED	3 3/4
V17A7	ANGLE	1 1/4	2	2	SCREWED	SCREWED	3 3/4
V17A8	ANGLE	1 1/2	2 1/2	2 3/8	SCREWED	SCREWED	8 1/4
V17A9	ANGLE	2	4 3/4	4 3/4	FLANGED	FLANGED	21 1/2
V17A10	ANGLE	2 1/2	4 3/4	4 3/4	FLANGED	FLANGED	21 1/2

ROUGHING IN DIMENSIONS

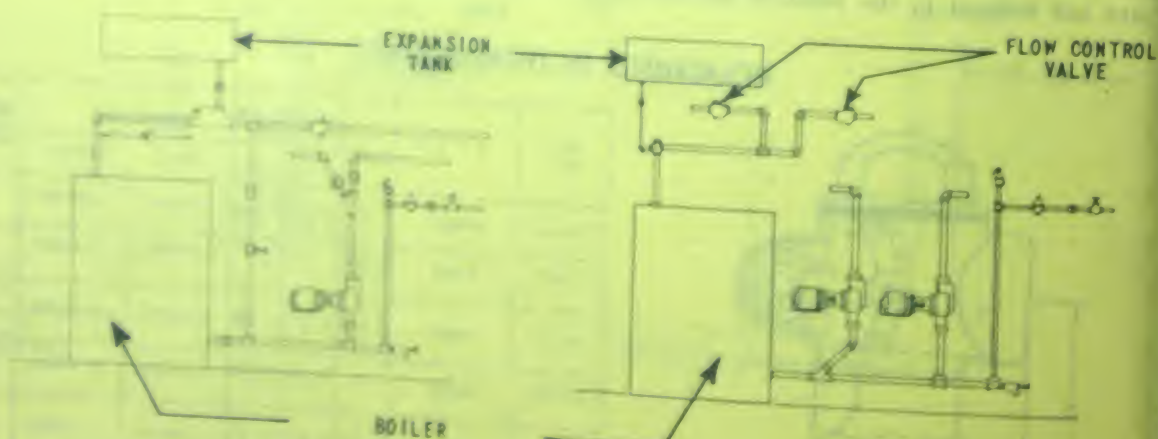


CAT. NO.	TYPE	SIZE	DIMENSIONS IN INCHES		CONNECTIONS		APPROX. SHIPPING WEIGHTS
			A	B	INLET	OUTLET	
V18A6	HORIZONTAL	1	4 13/16	5 15/16	SCREWED	SCREWED	5 1/2
V18A7	HORIZONTAL	1 1/4	4 13/16	5 15/16	SCREWED	SCREWED	5 1/2
V18A8	HORIZONTAL	1 1/2	5 3/8	7 1/4	SCREWED	SCREWED	12
V18A9	HORIZONTAL	2	7	10 1/2	FLANGED	FLANGED	30
V18A10	HORIZONTAL	2 1/2	7	10 1/2	FLANGED	FLANGED	30
V18A11	HORIZONTAL	3	6 5/8	12 1/8	FLANGED	FLANGED	38

TYPICAL INSTALLATION (Angle Type)



TYPICAL INSTALLATION (Horizontal Types)

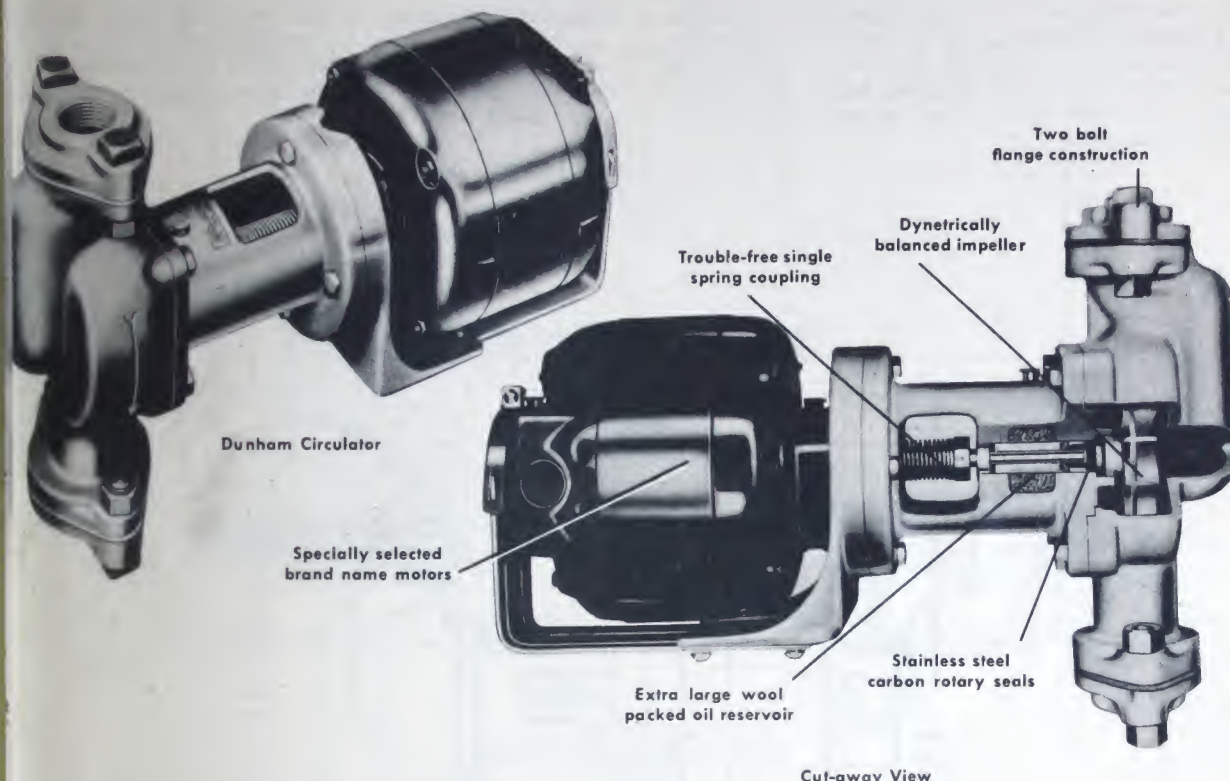


SPECIALTIES SECTION

HORIZONTAL CIRCULATORS

File No. 1563

Types C5A, C6A



APPLICATION

The Dunham Circulator may be installed on all water heating or cooling systems. Standard and high head capacity

models give full coverage of heating and/or cooling design requirements.

FEATURES

PROUS BRONZE BEARINGS

An extra large wool packed oil reservoir provides constant flow of oil to the long lubricating and aligning surface of the Prouse bronze Oilite bearing.

SPECIALLY SELECTED MOTORS

Only the finest nationally advertised and accepted brand name motors are used on Dunham Circulators. Each motor is carefully balanced and mounted in live rubber to guarantee vibrationless operation. Particular attention has been given wiring and electrical characteristics which result in highly efficient performance. Built-in automatic overload protection is standard.

ROTARY SEAL

All Dunham Circulators have field replaceable precision-ground stainless steel and carbon rotary seals. Weep hole construction prevents any water contamination of bearing lubricating section.

BALANCED ONE PIECE IMPELLER

The individually, dynelectrically, balanced impeller used in Dunham Circulators assures vibrationless operation at full rated capacities. Impeller shafts are ground and polished hardened stainless steel. Dunham C5 Circulators have cast iron open type impellers; Dunham C6 high head Circulators have cast bronze closed type impellers.

FEATURES

SINGLE SPRING COUPLING

The Dunham Circulator coupling is especially designed to form a flexible union between the motor and pump impeller. A single tempered spring design absorbs the shock of the motor starting torque and dampens sound and motion transfer. The single spring design eliminates troublesome service requirements.

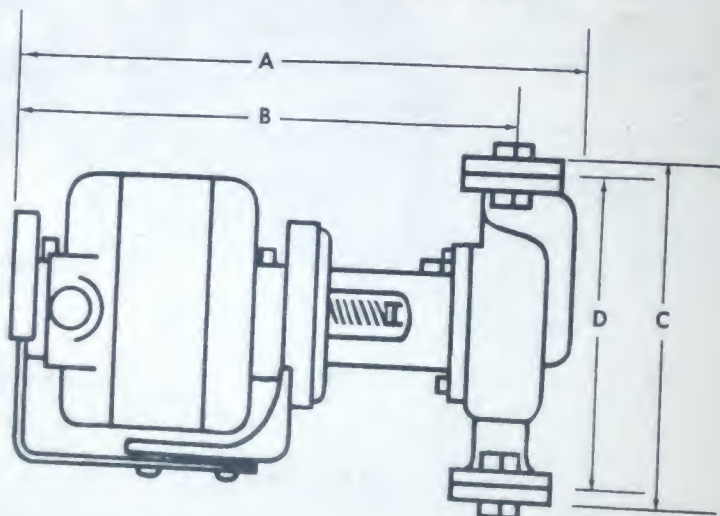
ADAPTABLE TO UNIVERSAL INSTALLATION

Dunham Circulators may be installed in either supply or return piping in either horizontal or vertical pipes and in any position that leaves the motor shaft horizontal. The two-bolt flange construction eases installation alignment and reduces labor time.

SIMPLIFIED SERVICE

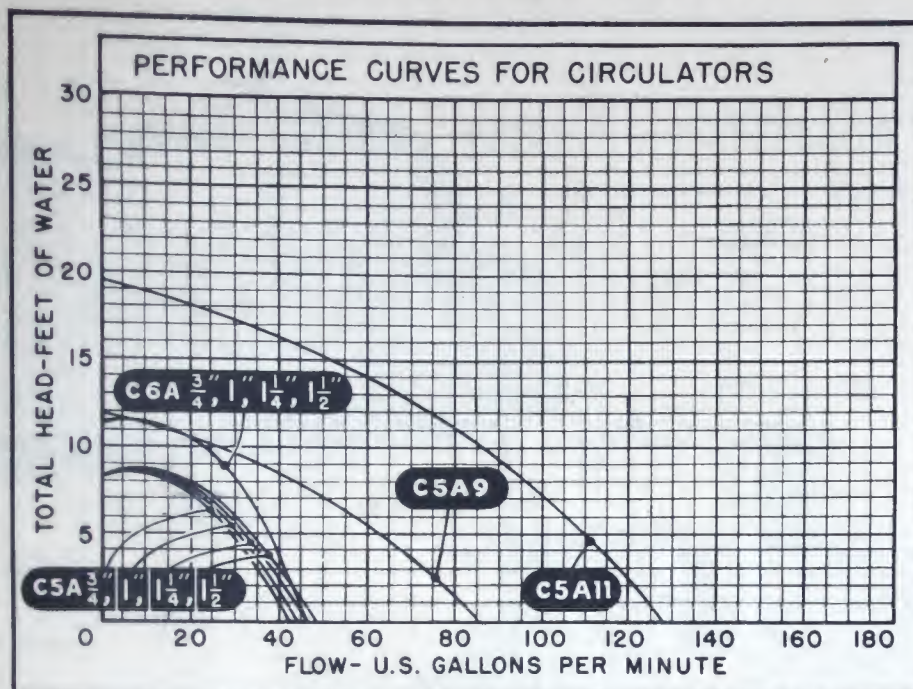
Dunham Circulators are easily serviced in the field. Simplicity of design makes all parts readily accessible.

DIMENSIONS AND WEIGHTS



CAT. NO. & SIZE	MOTOR—60C-AC+ 1725 R.P.M.	A	B	C	D	APPROX. SHIPPING WEIGHT
STANDARD C5A5-¾", C5A6-1", C5A7-1¼", C5A8-1½" C5A9-2"	⅛ HP-110 VOLT ⅛ HP-110 VOLT	16" 17"	14" 14½"	9¾" 13"	7½" 11"	40 LBS. 58 LBS.
HIGH DUTY C6A5-¾", C6A6-1", C6A7-1¼", C6A8-1½" C5A11-3"	⅛ HP-110 VOLT ½ HP-110/220 VOLTS	16¼" 21⅞"	14" 17⅞"	10¾" 15⅝"	8½" 13"	45 LBS. 125 LBS.

CIRCULATOR PERFORMANCE CURVES



SPECIFICATIONS

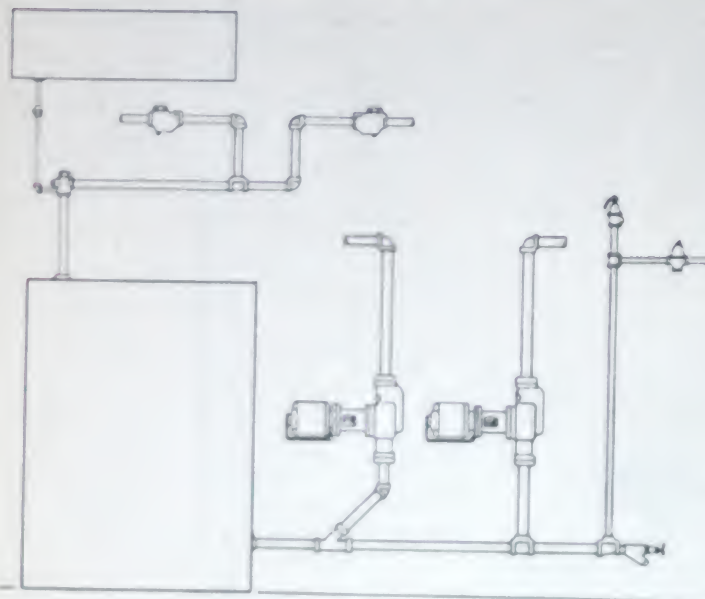
FEATURES	CAT. NOS. AND SIZES (Inches)			
	Standard C5A5-3/4, C5A6-1, C5A7-1 1/4, C5A8-1 1/2	High Duty C6A5-3/4, C6A6-1, C6A7-1 1/4 C6A8-1 1/2	C5A9-2	C5A11-3
Flanges	2 Bolt—Cast Iron*	2 Bolt—Cast Iron*	2"—4 Bolt—Cast Iron	3"—4 Bolt—Cast Iron
Body	Cast Iron	Cast Iron	Cast Iron	Cast Iron
Impeller— Dynerically Balanced	Cast— Open Type	Cast Bronze— Closed Type	Cast Bronze— Closed Type	Cast Bronze— Closed Type
Rotary Seals	Carbon & Stainless Steel	Carbon & Stainless Steel	Carbon & Stainless Steel	Carbon & Stainless Steel
Large Oil Reservoir	Packed with Wool Waste	Packed with Wool Waste	Packed with Wool Waste	Packed with Wool Waste
Motor—Selected for Quietness**	Rubber Mounted— Overload Protected	Rubber Mounted— Overload Protected	Rubber Mounted— Overload Protected	Rubber Mounted— Overload Protected
Drive Coupling	Flexible Steel Spring	Flexible Steel Spring	Flexible Steel Spring	Flexible Rubber
Oilite Bearing	Porous Bronze	Porous Bronze	Porous Bronze	Porous Bronze
Stainless Steel Shaft	Super-Finished	Super-Finished	Super-Finished	Super-Finished

*Interchangeable 3/4", 1", 1 1/4" or 1 1/2" flanges—Circulator itself has full 1 1/2" capacity.

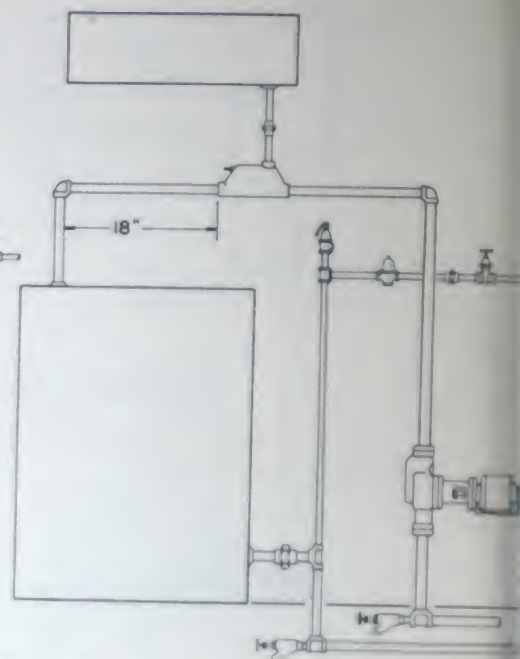
**For motor characteristics see DIMENSIONS AND WEIGHTS TABLE.

Note: All Dunham Circulators are shipped with cast iron body, bracket and flanges.

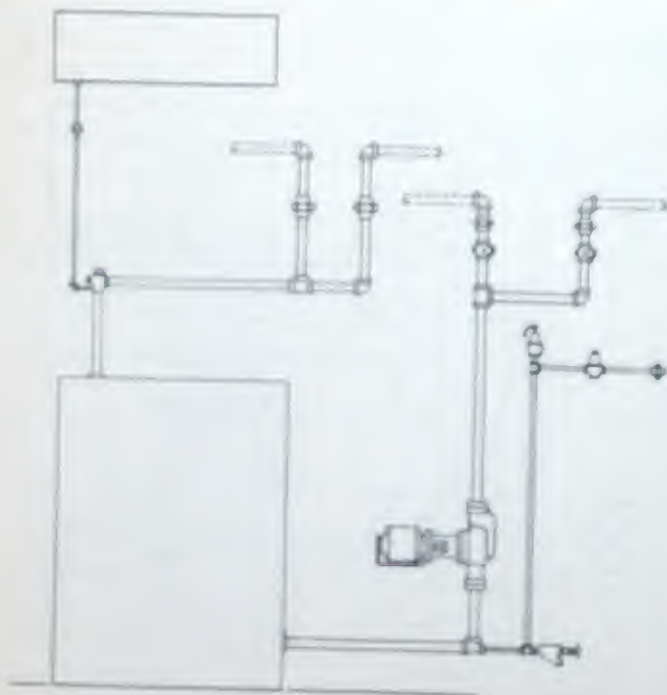
TYPICAL INSTALLATIONS



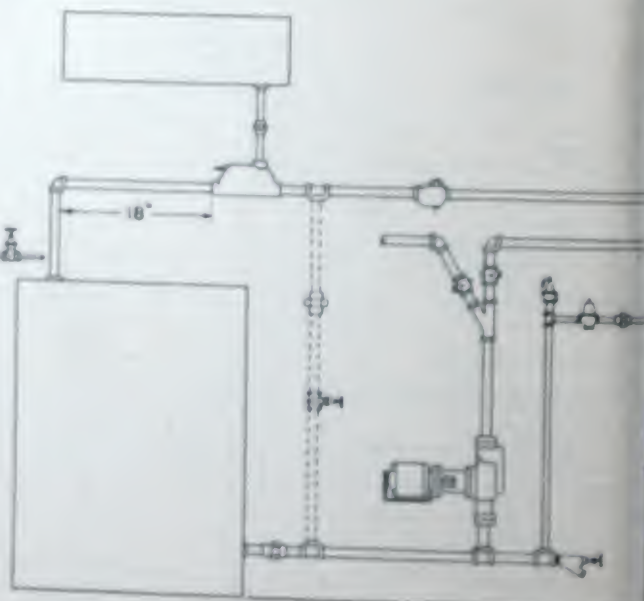
Typical Two Zone Forced Flow System with Dunham Circulator.



Single Zone Forced Flow System with Dunham Circulator. Main level with, or lower than Boiler.



Typical Piping and Equipment to Convert Gravity System to Forced Flow System with Dunham Circulator.



Single Zone Forced Flow System with Dunham Circulator.

Dunham Air Separator
moves air from
Separator perform

ONE-PIECE CON
is a heavy, one pie
three diverting loc
are integral parts o

SIMPLE, AUTOM
together with entr
the boiler. The thr
specially positioned
necessary to cause
rise to the top por
removes air bubbles
as shown in the abo

SPECIALTIES SECTION

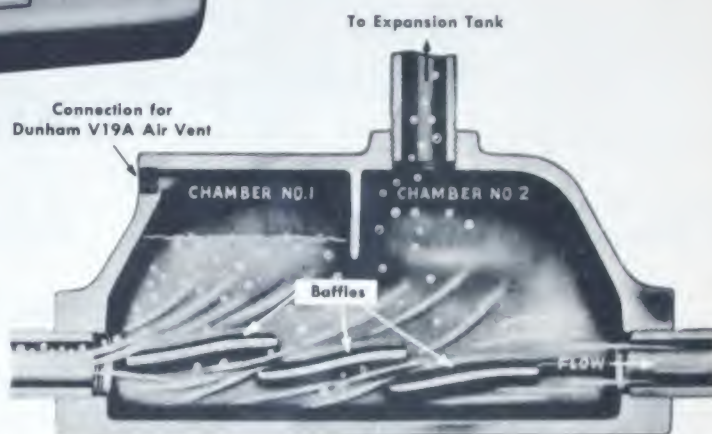
File No. 1565

AIR SEPARATOR

Type A4A



Dunham Air Separator



Cut-away View

APPLICATION

Dunham Air Separator automatically and positively removes air from forced hot water heating systems. Air Separator performs the dual function of passing air from the

system into the expansion tank to act as an air cushion and also exhaust the remaining excess air from the system through the Dunham Air Vent connected to the Separator.

FEATURES

ONE-PIECE CONSTRUCTION—Dunham Air Separator is a heavy, one piece iron casting that will not corrode. The three diverting baffles that separate the air from the water are integral parts of this one-piece casting.

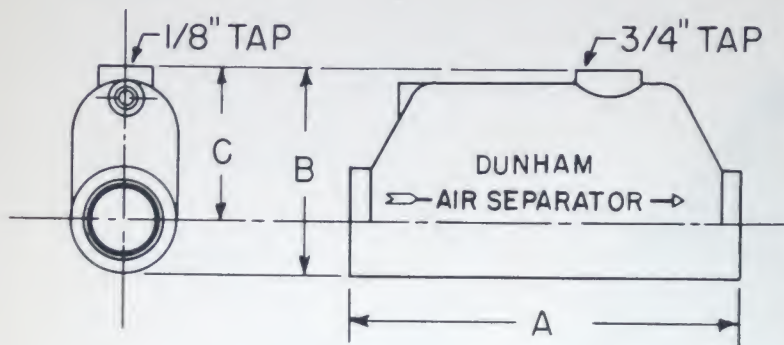
SIMPLE, AUTOMATIC OPERATION—The hot water, together with entrained air, enters the Air Separator from the boiler. The three baffles in the Air Separator are scientifically positioned to create the required amount of turbulence necessary to cause the air to separate from the water and rise to the top portions of the Separator. The first baffle causes air bubbles to rise and accumulate in the first chamber as shown in the above photo. From here it is removed from

the system by the Dunham Air Vent. The second and third baffles cause the remaining air bubbles to pass up and into the expansion tank.

POSITIVE VENTING—After the system is first filled, vent the radiation and high points. The Dunham Air Separator eliminates call backs by diverting released air to the expansion tank before it reaches the piping system, convectors, baseboard or radiant coils.

PROTECTS AGAINST AIR RE-ENTRY—In case air completely fills the expansion tank and attempts to back down into the Air Separator and the system, it will be removed by the Air Vent without disturbing the system operation.

DIMENSIONS & WEIGHTS



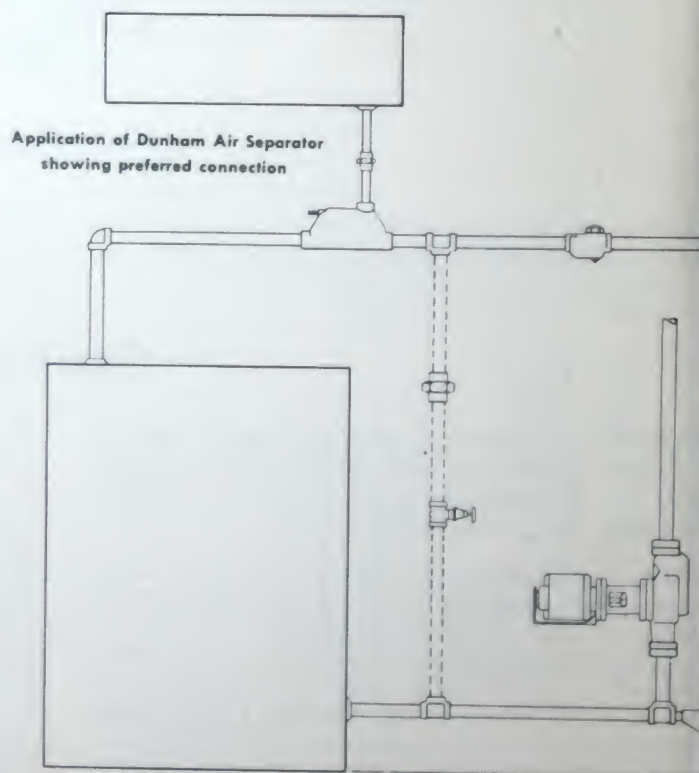
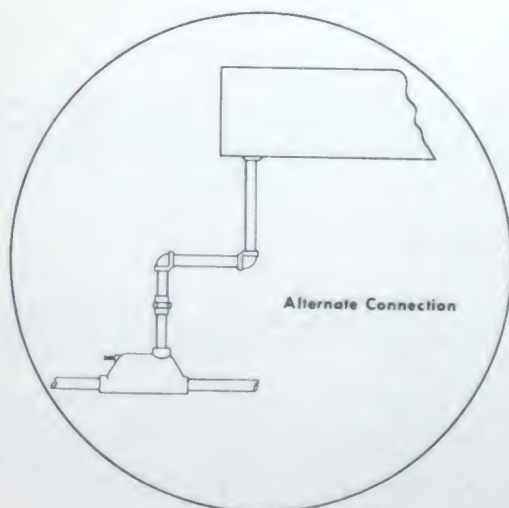
CAT. NO.	DIMENSIONS IN INCHES				APPROX. SHIPPING WEIGHTS
	SIZE	A	B	C	
A4A5	¾	9¼	4½	3¾	6½ LBS.
A4A6	1	9¼	4½	3¾	6½ LBS.
A4A7	1¼	10	5¾	3¾	9 LBS.
A4A8	1½	10	5¾	3¾	9 LBS.
A4A9	2	11½	7	5	16½ LBS.
A4A10	2½	11½	7	5	16½ LBS.

MAXIMUM WORKING PRESSURE—30 P.S.I.

TYPICAL INSTALLATION

Dunham Air Separator should be installed horizontally in the supply line about 18" from the vertical line as shown

here. The expansion tank should be installed directly over the Air Separator as illustrated.



The Dunham Air Separator should be installed horizontally in the supply line about 18" from the vertical line as shown here. The expansion tank should be installed directly over the Air Separator as illustrated.

DUNHAM

INSTALLATION INSTRUCTIONS

SPECIALTIES SECTION

File No. 3550

AIR SEPARATOR

Type A 4 A



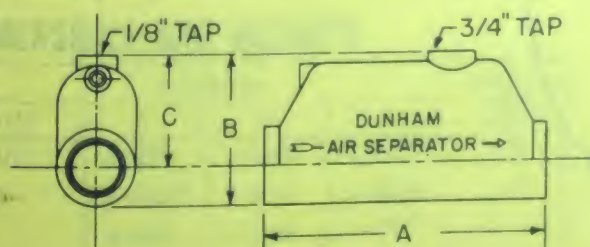
DUNHAM AIR SEPARATOR

HOW TO INSTALL

The Dunham Air Separator should be installed horizontally in the supply line approximately 18" from the vertical line and elbow. The expansion or air cushion tank should be installed directly over the Air Separator and connected with a short piece of pipe. (See Typical Installation Diagram on other side of sheet.)

When the system is first filled, all you have to do is vent the radiation and high points and the job is finished. The Dunham Air Separator eliminates call backs by diverting released air to the expansion tank before air reaches the piping system, convectors, baseboard or radiant coils.

ROUGHING IN DIMENSIONS

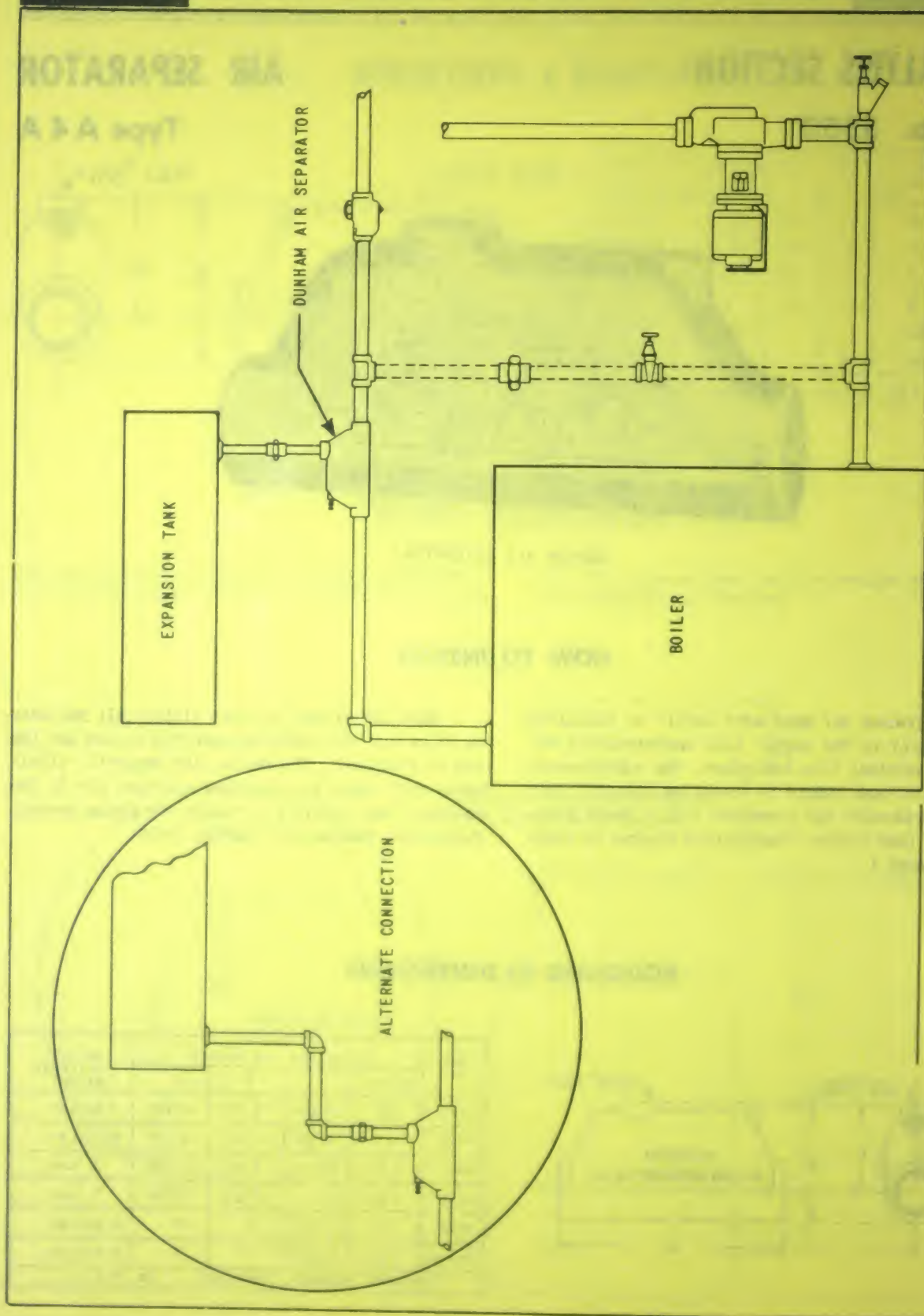


CAT. NO.	DIMENSIONS IN INCHES				APPROX. SHIPPING WEIGHT
	SIZE	A	B	C	
A4A5	3/4	9 1/4	4 1/2	3 5/16	6 1/2 LBS.
A4A6	1	9 1/4	4 1/2	3 5/16	6 1/2 LBS.
A4A7	1 1/4	10	5 3/8	3 13/16	9 LBS.
A4A8	1 1/2	10	5 3/8	3 13/16	9 LBS.
A4A9	2	11 1/2	7	5	16 1/2 LBS.
A4A10	2 1/2	11 1/2	7	5	16 1/2 LBS.
MAXIMUM WORKING PRESSURE					30 P.S.I.

File No. 3550
Jan. /55

DUNHAM

INSTALLATION INSTRUCTIONS



TYPICAL INSTALLATION

PREFERRED CONNECTION

The Dunham P...
plicable to steam c...
up to 60 lbs.

1. Simple, rugged heavy brass u... severe strains Valve body and
2. Tight seal arou...

DIMENSIONS

SIZE	A
1/2"	2-3/8"
3/4"	2-13/16"
1"	3-1/4"
1-1/4"	3-7/8"
1-1/2"	3-13/16"
2"	4-3/4"

MIN ORDERING OR SPECI...

REPLACES FILE NO. 39-2
C. A. DUNHAM CO., LTD.
TORONTO, ONTARIO
Printed in Canada

C. A. DUNHAM CO., LTD.
TORONTO, ONTARIO
Printed in Canada

SPECIALTIES

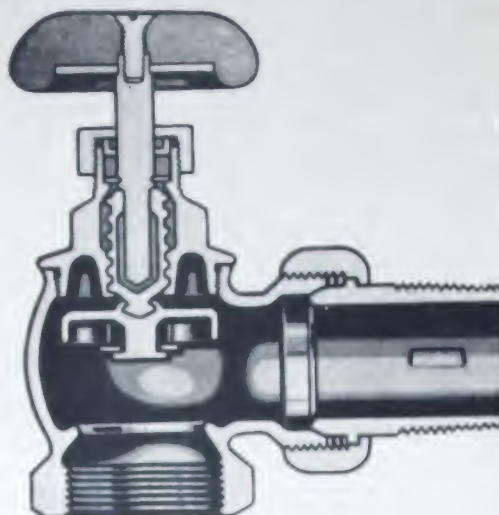
File No. 1526

RADIATOR VALVE

Packed Stem, No. 600



RADIATOR VALVE, NO. 600



SECTIONAL VIEW

APPLICATION

The Dunham Packed Stem, Radiator Valve, No. 600 is applicable to steam or hot water heating systems with pressures up to 60 lbs.

It offers a positive "on" or "off" control for any type of heating element or radiator. Heavy packing nut keeps packing tight around valve stem.

FEATURES

1. **Simple, rugged construction.** Valve is equipped with a heavy brass union nut and nipple capable of resisting severe strains often encountered during installation. Valve body and bonnet are cast brass.
2. **Tight seal around valve stem.** Heavy packing nut exerts

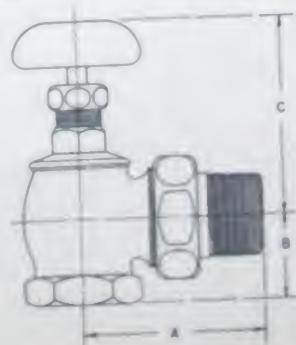
pressure on a solid, one-piece, graphited asbestos packing ring to provide a tight seal around valve stem.

3. **Simplified styling.** Attractive one-piece handle and non-rising stem make valve desirable for installation in exposed locations.

DIMENSIONS AND WEIGHTS

SIZE	DIMENSIONS			SHIPPING WEIGHT (LBS.)
	A	B	C	
1/2"	2-3/8"	1-1/16"	2-11/16"	1-1/4
3/4"	2-13/16"	1-1/4"	2-13/16"	1-1/2
1"	3-1/16"	1-7/16"	3-7/16"	2
1-1/4"	3-7/16"	1-5/8"	3-9/16"	2-1/2
1-1/2"	3-13/16"	1-7/8"	3-7/8"	3-3/4
2"	4-3/8"	2-1/4"	4"	5-3/4

WHEN ORDERING OR SPECIFYING, INDICATE: (1) Valve Number and (2) Size



NO. 600 VALVE
(Angle Pattern Only)

FILE NO. 1526
JAN. 55

[BLANK PAGE]



CCA

[BLANK PAGE]



CCA

